
आड़ू के भण्डारण के लिए मार्गदर्शिका
(पहला पुनरीक्षण)

Guide for Storage of Peaches
(First Revision)

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FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Fruits, Vegetables and Allied Products Sectional Committee had been approved by the Food and Agriculture Division Council.

To ensure fuller utilization of perishable foodstuffs, such as fruits and vegetables, it is necessary that they should be preserved under conditions so as to maintain their fitness for fresh consumption over a period of time. Refrigeration is one of the important means to preserve these foodstuffs. For cold storage of various fruits and vegetables based on scientific lines, a series of Indian Standard have been issued. It is hoped that these guides stipulating the conditions to be maintained for different fruits and vegetables would prove to be helpful in better administration of cold storages and in preventing avoidable wastage of fruits.

This standard was first published in 1975, for which assistance had been drawn from the then ISO Draft International Standard on the subject. The first revision of this standard is being brought out to align the conditions of storage with those prevailing in Indian scenario.

This Indian Standard provides guidance on storage of peaches, however, because of the variability of the product according to the time and place of cultivation, local conditions may make it necessary to define other conditions for harvesting or other physical conditions in the store.

The application of the guidelines contained in this Indian Standard should enable much wastage in storage to be avoided and thus should enable long-term storage to be achieved in most cases.

The composition of the Committee responsible for the formulation of this standard is given at Annex A.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated, expressing the result of a test or analysis shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

GUIDE FOR STORAGE OF PEACHES

(First Revision)

1 SCOPE

1.1 This standard describes methods for obtaining conditions for the successful cold storage and controlled atmosphere storage of peaches (*Prunus persica*).

1.2 Cultivars

The guidelines apply to peaches of different cultivars namely, Red Haven, Elberta, July Elberta, Glow Heaven, Shan E Punjab and Sharbati.

2 CONDITIONS OF HARVESTING AND PUTTING INTO STORAGE

2.1 Harvesting

2.1.1 It may be difficult to characterize the correct maturity for harvesting. The most frequently used practical criteria for determining the best time for harvesting should be:

- a) the basic ground colour of the outer skin;
- b) the hardness of the flesh, estimated by means of a spring penetrometer;
- c) total soluble solids determined by refractometer should preferably be 11° Brix (Mid-season cultivars); and
- d) titratable acid content: ≤ 0.7 percent.

2.1.2 Criteria mentioned below for determining the harvesting maturity of varieties July Elberta and Elberta have been found useful for canning:

- a) The fuzz (silky lustrous hairy surface) of the fruit turns dull and can be rubbed off with gentle hand when the fruit approaches maturity.
- b) On cutting the fruit along suture one half gets easily separated while stone which remains intact in the other half shows resistance in taking it out. However, it can be separated without cracking the pit.
- c) Fruit remains firm when pressed in the fist and cut halves do not allow juice to ooze out.
- d) Colour of flesh turns straw-yellow from creamish-white which changes to golden-yellow in fully mature fruits. The straw-yellow colour stage is the proper stage of maturity for picking for canning.

2.1.3 These criteria may not be universally valid, for a given variety and may vary from one region to another. The grower may decide on his own criteria for picking, on the basis of experience.

2.1.4 The basic ground colour and the recommended hardness may vary according to the variety. In general it is advisable to pick the fruit at the time when their colour varies between green and yellow.

2.1.5 At the time of picking, the flesh should be firm with a slight aroma and slightly acidic.

2.2 Quality Characteristics for Storage

Fruit put into cold storage should be sound, free from bruises or physiological disorders and free from any visible sign of fungal or bacterial attack. They should be clean and dry.

2.3 Various Treatments

2.3.1 For most varieties the fruit should be rapidly cooled after harvesting. Certain varieties, for example, Elberta and Red Haven, are sensitive to this treatment, and show a tendency to cotton-wool texture. Treatment with iced water, to which sodium hypochlorite (Min 150 mg/kg) has been added, has sometimes been recommended, as also the treatment with wax.

2.3.2 For varieties which are susceptible to brown rot or rhizopus rot, hot water dipping at 55 °C for three minutes be given.

2.4 Putting into Storage

The fruit should be put into the cold store as well as in CA storage after proper pre-cooling.

2.5 Controlled Atmosphere (CA) Storage

CA storage conditions extend the storage life for more days than cold storage, but some physiological disorders may occur.

3 OPTIMAL CONDITIONS OF STORAGE

3.1 Temperature

3.1.1 Temperature of 1 °C to 2 °C, subject to exception, has been recommended.

3.1.2 The recommended storage temperature for different varieties/cultivars are given in Table 1.

3.2 Relative Humidity

The optimal relative humidity for the storage of peaches is 90 percent.

3.3 Storage Life

3.3.1 According to the variety, keeping for 2 to 4 weeks at 0 °C may be expected in cold storage but more in CA storage. The expected storage life for a few varieties is given in Table 1.

3.3.2 Storage should not be prolonged beyond limits compatible with the maintenance of good quality.

3.3.3 Samples of fruit should be drawn in such a way as to detect the appearance of any wastage.

3.4 Operations at the End of Cold Storage

In certain cases complementary ripening may be needed at the end of the period in the cold store. Good results have been obtained with ripening temperatures of 18 to 20 °C. If the storage in the cold has been too prolonged, the fruit is often no longer capable of ripening normally.

Table 1 Recommended Temperatures and Gas Composition

(Clause 3.1.2)

Sl No.	Variety	Temperature	Gaseous Composition	Expected Storage Life	General Remarks
(1)	(2)	(3)	(4)	(5)	(6)
Cold storage					
i)	Red Haven	0 °C to 2 °C	—	2 to 4 Weeks	1 Require 3 days of complementary ripening
ii)	Elberta	–1 °C to 0 °C	—	2 to 4 Weeks	2 Tendency to cotton- wool texture
iii)	July Elberta	0 °C to 1 °C	—	2-3 Weeks	3 Susceptible to scald
iv)	Glow Heaven	0 °C to 1 °C	—	2-3 Weeks	
v)	Shan E Punjab	0 °C to 1 °C	—	2-3 Weeks	
vi)	Sharbati		—		
CA storage					
i)	Most of Peach varieties	–0.5 °C to 0 °C	2.0 percent O ₂ 4-5 percent CO ₂	40 Days	—

ANNEX A

(Foreword)

COMMITTEE COMPOSITION

Fruits, Vegetables, and Allied Products Sectional Committee, FAD 10

<i>Organization</i>	<i>Representative(s)</i>
ICAR-Indian Institute of Horticultural Research, Bengaluru	DR M. R. DINESH (Chairman)
All India Food Processors Association, New Delhi	DR R. K. BANSAL SHRIMATI MAMTA ARORA (<i>Alternate</i>)
Association of Food Scientists and Technologists India, Mumbai	DR REVATHY BASKARAN DR K. V. HARISH PRASHANTH (<i>Alternate</i>)
CSIR-Central Food Technological Research Institute, Mysore	DR P. VIJAYANAND DR A. S. CHAUHAN (<i>Alternate</i>)
College of Agricultural Engineering Post-Harvest Technology, Gangtok	DR SUJATA JENA DR SAID PRASHANT PANDHARINATH (<i>Alternate</i>)
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Jain Irrigation Systems Limited, Jalgaon	SHRI SUNIL GUPTA SHRI VINAY JAIN (<i>Alternate</i>)
Mother Dairy Fruit and Vegetable Private Limited, Noida	SHRI KUMAR KALPAM NANCY TALWAR (<i>Alternate</i>)

<i>Organization</i>	<i>Representative(s)</i>
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Panel Responsible for Review of Indian Standards Related to Storage, Transport and Ripening of Fresh Fruits
and Vegetables, FAD 10 : Panel 2

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